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REMARKS

Claims 1-3, 5-8 and 10-18 remain pending in the application. Favorable reconsideration of the application is respectfully requested.

I. REQUEST FOR TELEPHONE INTERVIEW

Applicant again respectfully requests that the Examiner contact the undersigned to arrange for a mutually convenient time to conduct a telephone interview prior to issuing any further non-favorable Office Action.

The present application has been pending for over two years and already has been subject to a Request for Continued Examination (RCE). Applicant believes such an interview could be helpful for clarifying any unresolved issues and expediting favorable prosecution.

II. REJECTION OF CLAIMS 1-3, 5-8 AND 10-18 UNDER 35 USC §103(a)

Claims 1-3, 5-8 and 10-18 remain rejected under 35 USC §103(a) based on *Rudd '676* in view of *Murphy*. Applicant again must respectfully traverse this rejection.

Summarizing applicant's position as set forth in the response filed on August 3, 2005, *Rudd '676* does not teach or suggest a brake controller which calculates inverse brake gain utilizing measured brake pressure and measured brake torque as recited in claims 1 and 17. Similarly, *Murphy* does not teach or suggest a brake controller which calculates inverse brake gain utilizing measured brake pressure and measured brake torque as recited in claims 1 and 17. While *Murphy* includes an embodiment which has a pressure sensor for measuring brake pressure, neither *Rudd '676* nor *Murphy* teaches or suggests using measured brake pressure in order to calculate inverse brake gain and provide brake control based thereon.

Responding to the points raised by the Examiner in the final Office Action, the Examiner first notes that:

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Although Rudd does not specifically mention using a "computed inverse brake gain" to adjust the brake pressure, applicants, in their specification at page 5 lines 17+ state appear to say (sic) that either brake gain or inverse brake gain may be used to produce the brake output pressure command signal to control the pressure applied to the brake assembly.

From equation (13) of Rudd (see col. Around line 27) (sic) it appears the inverse of torque to pressure (i.e., inverse brake gain – as defined by applicants) is in fact used at "k". (O.A., pp. 2-3).

For sake of argument alone, applicant concedes the above-points noted by the Examiner. However, these points do not address the applicant's argument that *Rudd '676* does not teach a brake controller which calculates inverse brake gain utilizing measured brake pressure and measured brake torque as recited in claims 1 and 17.

Rudd '676 discusses the measurement vector (i.e., the parameters that are measured) at Col. 8, Ins. 56+. As is noted, the brake torque is in fact measured. However, the brake pressure is not measured. Rather, the brake pressure is estimated. For example, Col. 16, Ins. 63-65 in *Rudd '676* explain how the torque/pressure ratio "k" is estimated. This is because while the torque is measured, the brake pressure is not. Accordingly, *Rudd '676* does not teach or suggest measuring the brake pressure for purposes of calculating the inverse brake gain as recited in claims 1 and 17.

The Examiner argues that it would have been obvious to modify *Rudd '676* based on the teachings of *Murphy* to achieve smoother braking. Applicant respectfully asks where is the motivation? Applicant previously pointed out that like *Rudd '676*, *Murphy* also does not teach or suggest a brake controller which calculates inverse brake gain utilizing measured brake pressure and measured brake torque as recited in claims 1 and 17. If neither reference teaches using measured brake pressure to calculate inverse brake gain to provide brake control, there can be no teaching or suggestion to modify *Rudd '676* in such manner as it would be contrary to the teachings of both references.

The Examiner's reliance on *Murphy* as teaching achieving smoother braking via measured brake pressure is misplaced. *Murphy* teaches achieving smoother braking via measured brake pressure in the manner described in *Murphy* (e.g., using the measured brake pressure to avoid discontinuities as suggested by the Examiner).

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However, *Murphy* does not teach or suggest one can achieve smoother braking via measure brake pressure as part of calculating inverse brake gain as recited in claims 1 and 17.

Moreover, *Rudd '676* is based on a state estimator. Utilizing measured brake pressure as part of calculating inverse brake gain in order to provide the brake control would be contrary to the purpose of *Rudd '676*.

Again, therefore, applicant must respectfully submit that the Examiner has not provided proper motivation for the proposed combination. Of course, this is in addition to the fact that neither reference teaches each and every element of the claimed invention regardless of whether they are taken alone or in combination.

Finally, the Examiner points to newly cited *Park* as further supporting the decision to maintain the rejection. First of all, applicant notes that *Park* has not been provided as a basis for the rejection. Nevertheless, applicant further notes that *Park* teaches that the brake pressure is estimated, not measured. (See, e.g., Col. 3, lns. 33-36). Even more significantly, applicant notes that *Park* teaches brake control in which the torque vs. pressure ratio (K_r), to which the Examiner refers, is assumed to be constant. (See, e.g., Col. 6, lns. 63-65). Thus, *Park* teaches even further away from the combination recited in claims 1 and 17.

Applicant again emphasizes that claims 1 and 17 recite how the brake controller receives as inputs *both* the torque applied to the wheel and the brake pressure applied to the wheel. Using both the measured brake torque and measured brake pressure, an accurate inverse brake gain may be calculated and is utilized to adjust the brake pressure output command as recited in claims 1 and 17. As is discussed in the present application, using the measured brake pressure overcomes the disadvantages associated with conventional approaches in which torque feedback alone was utilized.

Rudd '676 does not teach or suggest a controller which calculates inverse brake gain utilizing the measured brake torque and measured brake pressure as recited in

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claims 1 and 17. Nor does *Rudd '676* teach or suggest the desirability of such an approach.

Moreover, *Murphy* does not make up for the deficiencies in *Rudd '676* insofar as teaching or suggesting a controller which calculates inverse brake gain utilizing the measured brake torque and measured brake pressure as recited in claims 1 and 17.

In view of the clear absence of any such teachings in *Rudd '676* and *Murphy*, and in view of the clear absence of any showing of motivation, the Examiner fails to set forth even a *prima facie* basis for the rejection of claims 1 and 17. Withdrawal of the rejection of claims 1, 17, and the claims dependent therefrom is respectfully requested.

Regarding the various dependent claims, these claims too may be distinguished over the teachings of the cited references for at least the same reasons. Regarding claim 3, the computed inverse brake gain is a function of the brake torque applied to the wheel resulting from an amount of pressure applied to the wheel by the brake actuator via the brake assembly. Neither *Rudd '676* nor *Murphy* teach or suggest such a computed inverse brake gain. Further, claims 12-16 detail the manner in which the desired response characteristics can involve particular limits as recited therein. Neither *Rudd '676* nor *Murphy* teach or suggest such characteristics.

Thus, applicant respectfully submits that claims 1-3, 5-8 and 10-18 are patentably distinguishable over the cited art. Applicant respectfully requests withdrawal of the rejection.

III. CONCLUSION

Accordingly, all claims 1-3, 5-8 and 10-18 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.


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Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

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DATE: December 19, 2005

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